

CLAIMS

1. Method of allocating and controlling downlink power in a telecommunication system comprising
- 5 a plurality of base stations, each of which providing communication services by means of downlink channels requiring certain portions of allocated downlink power,
- a plurality of user equipments, each of which occupying a downlink channel of at least one base station for usage of
- 10 said communication services, and each of which sending within common periodical time intervals power requests to said base station in order to adjust the transmission power of its occupied downlink channel,
- characterised in
- 15 performing for each base station within said time intervals the steps of
- accumulating (21) said received power requests for each of the occupied downlink channels,
- estimating (221) the total allocated downlink power level
- 20 for the base station with regard to the received power requests for each of the occupied downlink channels,
- accepting (23,No) said received power requests for all downlink channels and initiating admission control measures
- (25) if said estimated downlink power level is below a
- 25 maximum permitted downlink power level, while
- rejecting (23,Yes) said received power requests for a selected subset of downlink channels and initiating congestion control measures (24) if said estimated downlink power level exceeds a maximum permitted downlink power
- 30 level.

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2. Method according to claim 1,

c h a r a c t e r i z e d i n

said congestion control measures (24) including the steps of

applying the number of rejected power requests for the
5 present and/or a number of preceding time intervals in one
or a combination of operator-definable congestion criterions
(241),

determining a congestion (242) for the present time interval
if one or more congestion criterions are fulfilled,

10 if the number of subsequently determined congestions or the
number of congestions within several time intervals exceeds
a given threshold value τ_2 (245), including the additional
steps of

15 selecting a subset of downlink channels to a number of user
equipments (246),

resolving the congestion by releasing the downlink channels
of said selected subset (247).

3. Method according to claim 2,

c h a r a c t e r i z e d i n

20 initiating preliminary congestion measures (244) if the
number of subsequent congestions or the number of
congestions within a given time interval exceeds a first
threshold value $\tau_1 < \tau_2$ (243).

4. Method according to claim 1,

25 c h a r a c t e r i z e d i n

said admission control measures (25) including the steps of

accepting (251) a new user equipment for the base station if the estimated downlink power level is below an operator-definable admission power level (252).

4 5. Method according to claim 1-~~or 2,~~

5 characterized in

selecting a subset of downlink channels (223,246) to a number of user equipments by applying one or a combination of operator-definable selection criterions.

6. Method according to claim 5,

10 characterized in

applying the type of service that is requested from a user equipment as a selection and/or congestion criterion.

7. Method according to claim 5,

characterized in

15 applying the signal-to-interference ratio of the downlink channels as a selection and/or congestion criterion.

8. Method according to claim 5,

characterized in

20 applying an operator-definable priority of a user equipment as a selection and/or congestion criterion.

9. Method according to claim 5,

characterized in

25 applying the number of downlink channels that are assigned to a user equipment from different base stations as a selection criterion.